

## USE OF FOCUSED ULTRASOUND FOR VASCULAR SEALING

### Abstract of the Disclosure

An ultrasonic applicator unit (2) is used diagnostically to locate a puncture wound (316) in an artery and then therapeutically to seal the puncture wound with  
5 high intensity focused ultrasound (HIFU). A control unit (6) coupled to the applicator unit includes a processor (74) that automates the procedure, controlling various parameters of the diagnostic and therapeutic modes, including the intensity and duration of the ultrasonic energy emitted by the applicator unit. A  
10 protective, sterile acoustic shell (4), which is intended to be used with a single patient and then discarded, is slipped over the applicator unit to protect against direct contact between the applicator unit and the patient and to maintain a sterile field at the site of the puncture. The apparatus and method are particularly applicable to sealing a puncture made when inserting a catheter into an artery or other vessel. Several different procedures are described for locating the puncture  
15 wound, including imaging the vessel in which the puncture is disposed and use of a locator rod to determine the disposition of the puncture along the longitudinal axis of the artery.